

California Type Evaluation Program
One-of-a-Kind Certificate of Approval
Weighing and Measuring Devices

For:

Hydrogen Gas-Measuring Device
Retail Motor Fuel Dispenser
Electronic Computing
Model: PTLFM-11
Capacity: \$9999.99 Total Sales
 99999.999 kg Total Mass
 \$99.999 Maximum Unit Price
Accuracy Class: 5.0

Submitted By:

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Standard Features and Options

- Rheonik Type RHM08 Coriolis Mass Flow Meter with Rheonik Transmitter Model RHE08
- Gilbarco Nxx Series (Generic Name Encore) Cabinet with Gilbarco Upper Electronics and Category 1 Sealing Provisions (Refer to Sealing, Page 2)
- Dual Hose Dispenser with Separate 350 Bar and 700 Bar fill Pressures
- Back-Lighted Liquid Crystal Display (LCD)
- Information Screen with Video Operating Instructions
- Stand-alone (No Console Controller)
- Display Back-up for up to 72 Hours
- Electronic Totalizers for Mass (kg)
- Minimum Measured Quantity (MMQ) of 500 Grams

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable requirements of California Code of Regulations for "Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.



Kristin J. Macey, Director
Effective Date: February 22, 2016

State of California, Department of Food and Agriculture, Division of Measurement Standards
6790 Florin Perkins Road, Suite 100 / Sacramento, CA 95828

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Hydrogen Gas-Measuring Device / PTLFM-11

Application: For use in dispensing compressed hydrogen as a motor vehicle fuel.

Identification: The identification (ID) label is attached to the left inside of the cabinet on the 700 bar hose side mid-way up from the bottom.

Sealing: Access to all metrological features and functions are controlled through the use of a security switch (located in the upper electronics behind the main display on the 350 hose side), and a tab cover over the switch that allows for a wire security seal to be threaded through a hole in the tab cover and a hole in the tab cover bracket frame; thereby, sealing the switch in place so that it cannot be moved while sealed. The security switch has two positions, "normal/sealed" (switch is positioned to the left) and "calibration/configuration" (switch is positioned to the right). The tab cover is constructed so that it will interfere with the switch by not allowing the cover to be placed over the switch if in the "calibration/configuration" position. The security switch is located behind the locked main options door in the upper electronics enclosure.

The Rheonik measuring element has no calibration or configuration capabilities that require the use of a security seal. Calibration and configuration is accessed through the Rheonik transmitter Model RHE08 front panel keypad (located separate from the dispenser with the hydrogen production, compression, and storage equipment). The keypad is covered with a plate that is sealed with a wire security seal to prevent access to the keypad.

Operation: Authorization to dispense is controlled through the use of a human machine interface (HMI). Customers will use the HMI to enter a PIN number issued by the owner/operator of the dispenser. Operation instructions are presented on the video display after authorization to dispense hydrogen. Flows are dictated by the dispenser in order to keep from overheating the fill tanks.

To initiate a fill, the customer must:

1. Remove the dispenser nozzle, connect to the vehicle fill port and squeeze the nozzle handle until a "click" is heard and the nozzle locks into place locking the dispenser nozzle onto vehicle fill port.
2. Lift the dispenser handle to reset the amount dispensed display and unlock the PIN screen.
3. Press "Start" on the HMI touch screen to access the PIN screen, enter the PIN number, and press "OK." Once the "begin fueling screen" is displayed, the customer presses "OK" to begin fueling operation.

The amount dispensed is displayed on the dispenser main window that shows total sale and kilograms dispensed. The HMI will display a "Fueling in Progress" screen that indicates current nozzle pressure, estimated time required to complete fill and time elapsed since fill was initiated. There is an "Abort Fueling" button displayed as well. Fueling can also be aborted by pushing the dispenser handle down to terminate fill and vent nozzle hose pressure. When fueling is complete, the dispenser HMI screen will display "Fueling Completed" with instructions to "Push dispenser handle down", "Remove nozzle from vehicle" and "Return nozzle to dispenser."

The total values of the mass values dispensed specific to each hose may be accessed by using the Manager's Keypad located behind the Customer Interface Module door on hose side 1 of the dispenser. The values may be accessed to display on the face of the dispenser by combining values in the main display window of the total sale and kilogram dispensed, in addition to the price per unit window.

Use the Manager's Keypad and instructions below to display these totals:

1. Press MASS TOTAL. The display will show the number 4 in the top left of the screen.
2. Press "Enter" to change the flashing display location to the first digit representing the hose number.
3. Press "1" for hose side 1 or 2 for hose side 2.
4. Press "Enter." The flashing display moves to the second digit.
5. Repeat step 3 for confirmation of hose number, then press enter.
6. Read totals left to right. Combine the numbers in the kilogram and price per unit displays to read the total mass.
7. Press "Clear" to return to normal mode.

Refer to Figures 1 and 2 for total mass example of 174.121.

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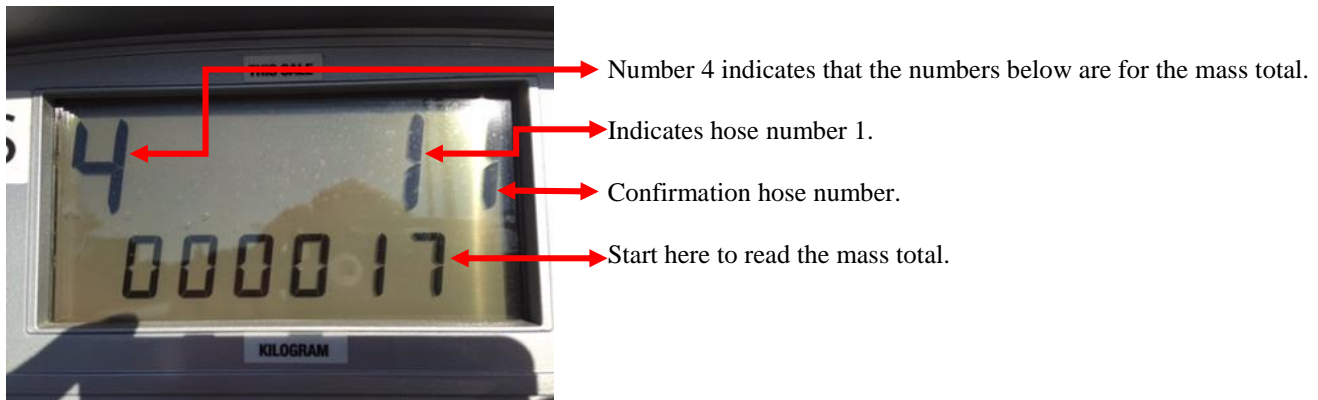


Figure 1

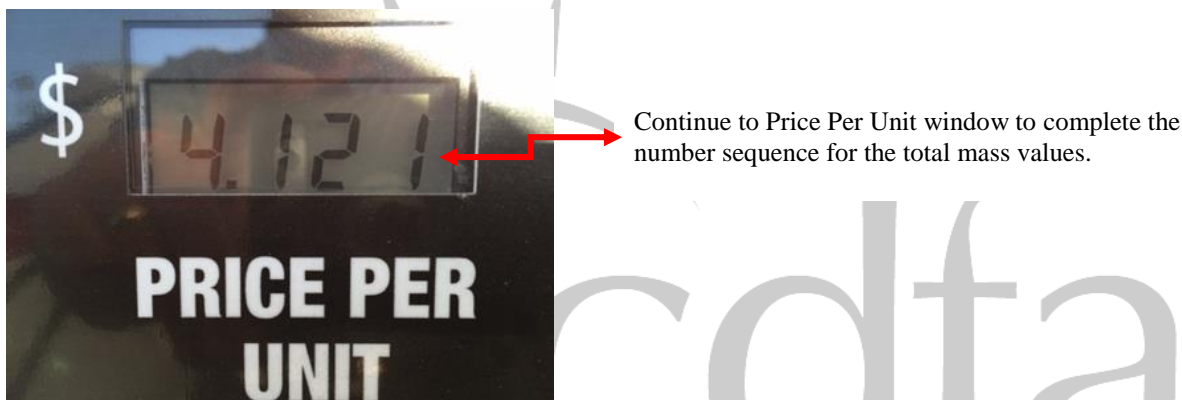


Figure 2

Test Conditions: The emphasis of the evaluation was on device design, performance, markings, sealing, accuracy, repeatability, and permanence. The device was tested gravimetrically. Multiple drafts were drawn using combinations of non-communication partial fills by manually stopping the dispenser, and non-communication full fills by allowing the dispenser to stop automatically at varying flows of 0.3 kg/min up to 1.8 kg/min from the 700 bar hose. Multiple drafts were also drawn from the 350 bar hose under the same conditions as above for non-communication fills at flows from 0.08 kg/min up to 0.3 kg/min. Flows were dictated by the dispenser in order to keep from overheating the fill tanks. The MMQ of 500 grams was also tested. After 60 days of throughput, tests described above were repeated, and all test results were within acceptance tolerance.

Evaluated By: N. Ingram (CA)

Type Evaluation Criteria Used: *California Code of Regulations, Title 4, Division 9, Article 1. National Uniformity, Exceptions and Additions 2016 Edition.*

Conclusion: The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.

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Example of Device:

